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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/791,426

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Steven Barone

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07/30/2009

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EXAMINER

BARTON, JEFFREY THOMAS

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/791,426	<b>Applicant(s)</b> BARONE, STEVEN	
	<b>Examiner</b> Jeffrey T. Barton	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 07 April 2009.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

**DETAILED ACTION**

***Response to Amendment***

1. The amendment filed on 7 April 2009 does not place the application in condition for allowance.

***Status of Rejections Pending Since the Office Action of 8 December 2008***

2. All previous rejections are withdrawn due to Applicant's amendment.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 6, and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by O'Neill. (US 4,545,366)

O'Neill teaches a solar concentrator system (Figure 1) comprising a plurality of solar cells (6) that include photovoltaic material (Column 2, lines 18-19); and at least one optical element (1) having a plurality of lenses (2) superimposed on a curved surface of a collector lens (Cylindrical Fresnel lens 4), wherein the plurality of lenses and the collector lens each "at least partially" focus radiation as claimed. (Column 2, lines 18-57)

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 2, 7, 9, 10, and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill (US 4,545,366) as applied to claims 1, 6, and 8 above, and further in view of either Edling et al (US 5,408,990) or Johnson. (US 4,297,521)

The disclosure of O'Neill is as stated above for claims 1, 6 and 8.

The differences between O'Neill and the claims are the requirement of a plurality of optical elements or an array of optical elements.

Edling et al teaches a solar concentrator device as shown in figures 1 and 2. The device comprises an array or plurality of linear Fresnel optical elements (38) and solar absorbers (16) coupled together with one housing having an opening as claimed and providing support as claimed.

Johnson teaches a solar concentrator device as shown in figure 6. The device comprises an array or plurality of optical elements (66) and solar cells (Disclosed in conjunction with holorum 70; see Column 8, lines 44-61; Column 7, lines 37-56) coupled together with one housing (Frame 104; alternatively shell 62) having an opening as claimed and providing support as claimed.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the array configuration of multiple cells and multiple optical elements of either Edling et al or Johnson with multiple devices of O'Neill because the array configuration allows for more radiation to be received, more power to be produced, and thus more possible applications for the device. Furthermore, O'Neill teaches that the lenses and cells of his system are to be placed within suitable housing structures. (Column 2, lines 20-24) Because O'Neill, Edling et al, and Johnson are concerned with conversion of radiation into energy, one would have a reasonable expectation of success from the combination.

8. Claims 2-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill (US 4,545,366) as applied to claims 1, 6, and 8 above, and further in view of O'Neill (US 4,069,812).

O'Neill (US 4,545,366) is relied upon for the reasons given above in addressing claims 1, 6, and 8.

O'Neill (US 4,545,366) does not explicitly teach the instant housing or directing means.

Regarding claim 2, O'Neill (US 4,069,812) teaches a housing (Figure 1; Sidewalls 36, 38, bottom 46, and end panels 60; Column 4, lines 22-51) having an opening and providing support as claimed. Regarding claims 3 and 4, O'Neill (US 4,069,812) also teaches additional directing means (Figure 5) that are mirrors (201 and 202) that direct the radiation from the lens to the absorber.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of O'Neill (US 4,545,366) by placing the lens and solar cell system in the housing of O'Neill (US 4,069,812), because O'Neill (US 4,545,366) directly suggests doing so. (Column 2, lines 20-24)

It would further have been obvious to employ additional directing means to direct the light from the lens structure onto the absorber, as taught in the embodiment of Figure 5 of O'Neill (US 4,069,812), because O'Neill (US 4,069,812) teaches the effectiveness of this structure in directing light to a very small absorber (Column 13, lines 47-61), and a skilled artisan would have recognized that such modification would provide an additional advantageous degree of concentration and allow the further reduction in the amount of expensive photovoltaic material required, with corresponding reduction in cost of electricity generation.

9. Claims 9-12 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill (US 4,545,366) in view of O'Neill (US 4,069,812) and either Edling et al or Johnson.

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O'Neill teaches a solar concentrator system (Figure 1) comprising a plurality of solar cells (6) that include photovoltaic material (Column 2, lines 18-19); and at least one optical element (1) having a plurality of lenses (2) superimposed on a curved surface of a collector lens (Cylindrical Fresnel lens 4), wherein the plurality of lenses and the collector lens each "at least partially" focus radiation as claimed. (Column 2, lines 18-57)

Regarding claim 9, O'Neill (US 4,545,366) does not explicitly teach providing a plurality of the solar cell elements and optical elements as an array.

Regarding claims 10-12, O'Neill (US 4,545,366) does not explicitly teach the instant housing or directing means.

O'Neill (US 4,069,812) teaches a housing (Figure 1; Sidewalls 36, 38, bottom 46, and end panels 60; Column 4, lines 22-51) having an opening and providing support as claimed in claim 10. Regarding claims 11 and 12, O'Neill (US 4,069,812) also teaches additional directing means (Figure 5) that are mirrors (201 and 202) that direct the radiation from the lens to the absorber.

Edling et al teaches a solar concentrator device as shown in figures 1 and 2. The device comprises an array or plurality of linear Fresnel optical elements (38) and solar absorbers (16) coupled together with one housing.

Johnson teaches a solar concentrator device as shown in figure 6. The device comprises an array or plurality of optical elements (66) and solar cells (Disclosed in

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conjunction with holorum 70; see Column 8, lines 44-61; Column 7, lines 37-56) coupled together with one housing (Frame 104).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of O'Neill (US 4,545,366) by placing the lens and solar cell system in the housing of O'Neill (US 4,069,812), because O'Neill (US 4,545,366) directly suggests doing so. (Column 2, lines 20-24)

It would further have been obvious to employ additional directing means to direct the light from the lens structure onto the absorber, as taught in the embodiment of Figure 5 of O'Neill (US 4,069,812), because O'Neill (US 4,069,812) teaches the effectiveness of this structure in directing light to a very small absorber (Column 13, lines 47-61), and a skilled artisan would have recognized that such modification would provide an additional advantageous degree of concentration and allow the further reduction in the amount of expensive photovoltaic material required, with corresponding reduction in cost of electricity generation.

It also would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize the array configuration of multiple cells and multiple optical elements of either Edling et al or Johnson with multiple devices taught by the combination of O'Neill (US 4,545,366) and O'Neill (US 5,069,812) because the array configuration allows for more radiation to be received, more power to be produced, and thus more possible applications for the device.

The combination made above meets all limitations of claims 9-12.



10. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill (US 4,545,366) and O'Neill (US 4,069,812) as applied to claims 2-4 above, and further in view of Nicoletti et al. (US 7,173,179).

O'Neill (US 4,545,366) in view of O'Neill (US 4,069,812) is relied upon for the reasons given above in addressing claims 2-4.

The difference between O'Neill (US 4,545,366) in view of O'Neill (US 4,069,812) is a directing means including a prism.

Nicoletti teaches a solar device and that a mirror or prism can be utilized to direct light (column 12, paragraph 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a prism as in Nicoletti as the light directing element in the device taught by the combination of O'Neill (US 4,545,366) and O'Neill (US 4,069,812), because it is known in the art as shown by Nicoletti, to utilize mirrors or prisms as reflective materials to direct light. Because all cited references are concerned with direction of radiation, one would have a reasonable expectation of success from the combination. Thus the combination meets the claims.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neill (US 4,545,366), O'Neill (US 4,069,812) and either Edling et al or Johnson, as applied to claims 9-12 and 14 above, and further in view of Nicoletti et al. (US 7,173,179)

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O'Neill (US 4,545,366) in view of O'Neill (US 4,069,812) and either Edling et al or Johnson is relied upon for the reasons given above in addressing claims 9-12 and 14.

The difference between O'Neill (US 4,545,366) in view of O'Neill (US 4,069,812) and either Edling et al or Johnson and the claims is a directing means including a prism.

Nicoletti teaches a solar device and that a mirror or prism can be utilized to direct light (column 12, paragraph 2).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize a prism as in Nicoletti as the light directing element in the device taught by the combination of O'Neill (US 4,545,366), O'Neill (US 4,069,812) and either Edling et al or Johnson, because it is known in the art as shown by Nicoletti, to utilize mirrors or prisms as reflective materials to direct light. Because all cited references are concerned with direction of radiation, one would have a reasonable expectation of success from the combination. Thus the combination meets the claims.

### ***Double Patenting***

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

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A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-14 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,700,055 in view of O'Neill. (US 4,545,366) The claims of U.S. Patent 6,700,055 disclose all the features of the presently claimed invention except for the optical element having a plurality of lenses superimposed on the surface of a larger lens. O'Neill teaches an optical element having a plurality of lenses superimposed on the surface of a larger lens (Figure 1, element 1 with larger lens 4, and plurality of lenses 2). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include this optical element within the device of U.S. 6,700,055 because the element concentrates the light onto specific points of the photovoltaic material in one element rather than the separate elements utilized within U.S. 6,700,055. Because O'Neill and U.S. 6,700,055 are concerned with optical elements for photovoltaic cells, one would have a reasonable expectation of success from the combination.

### ***Response to Arguments***

14. Applicant's arguments with respect to the previous rejections have been considered but are moot in view of the new ground(s) of rejection.

***Conclusion***

15. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dr. Jeffrey T. Barton whose telephone number is (571)272-1307. The examiner can normally be reached on M-F 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571) 272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jeffrey T. Barton/  
Examiner, Art Unit 1795  
27 July 2009